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## Reducing Emissions from Deforestation in Developing Countries under the UNFCCC: Caveats and Opportunities for Biodiversity

Annalisa Savaresi

### I. INTRODUCTION

Every year, the world loses millions of hectares of forests,<sup>1</sup> and forestry accounts for around 12-18 percent of global carbon emissions.<sup>2</sup> States have long strived to adopt an international instrument on forests.<sup>3</sup> The numerous regional and multilateral initiatives established to address this objective have achieved little in the way of concrete results.<sup>4</sup> And yet, as substitution for some forest ecosystem services<sup>5</sup> may be

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<sup>1</sup> Food and Agriculture Organization (FAO), Global Forest Resources Assessment, at 3 (2010).

<sup>2</sup> According to the fourth assessment report of the Intergovernmental Panel on Climate Change (IPCC), forestry accounts for around 17 percent of global carbon emissions. IPCC, *Climate Change 2007: Synthesis Report* (2007). According to more recent estimates, this number may be closer to 15 percent, taking into account emissions from peat lands (excluded from the IPCC estimate) as well as increased fossil fuel emissions and updated deforestation data, see G.R. van der Werf et al., *CO<sub>2</sub> Emissions from Forest Loss* 2 *Nature Geoscience* 737 (2009).

<sup>3</sup> The most salient outcome of these processes was the adoption by the United Nations General Assembly of the Non-Legally Binding Instrument on Sustainable Forest Management of All Types of Forests, UN Doc. A/RES/62/98 UNGA/Res/62/98 (31 January 2008). For a review, see K. Kunzmann, *The Non-Legally Binding Instrument on Sustainable Management of All Types of Forests: Towards a Legal Regime for Sustainable Forest Management?* 9 *German L.J.* 981 (2008).

<sup>4</sup> For an overview, see R.D. Lipschutz, *Why Is There No International Forestry Law? An Examination of International Forestry Regulation, both Public and Private* 19 *U.C.L.A. J. Env't'l L. & Pol'y* 153 (2001); D. Humphreys, *The Elusive Quest for a Global Forests Convention* 14 *R.E.C.I.E.L.* 1 (2005); R.S. Dimitrov, *Hostage to Norms: States, Institutions and Global Forest Politics* 5 *Global Env't'l Politics* 1 (2005); and, more recently, J. Rayner, A. Buck, and P. Katila, *Embracing Complexity: Meeting the Challenges of International Forest Governance: A Global Assessment Report*, Prepared by the Global Forest Expert Panel on the International Forest Regime (IUFRO World Series, 2010).

<sup>5</sup> Ecosystem services may be defined as 'the conditions and processors through which natural ecosystems, and species that make them up, sustain and fulfil human

impossible, forests arguably need to be managed in a way that is consistent with international obligations on issues regarded as a common concern of all states, such as biodiversity protection and climate change mitigation.<sup>6</sup>

Initiatives to tackle forest loss have found renewed impetus in the framework of the United Nations Framework Convention on Climate Change (UNFCCC).<sup>7</sup> The objective of the UNFCCC is ‘to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.’<sup>8</sup> Such a level ‘should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.’<sup>9</sup>

Negotiations under the UNFCCC have drawn unprecedented attention to the role of forests in mitigating climate change. Since 2007, ‘reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries’ (REDD) has become central to the negotiations on long-term co-operative action under the convention, as outlined in the Bali Action Plan.<sup>10</sup> Action to support REDD may ‘promote co-benefits and complement the aims

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life.’ G. Heal et al., *Protecting Natural Capital through Ecosystem Service Districts* 20 Stanford Env’tl L. J. 333 at 336 (2001). For a discussion, see J. Boyd and S. Banzhaf, *What Are Ecosystem Services? The Need for Standardized Environmental Accounting Units*, <<http://www.rff.org/Documents/RFF-DP-06-02.pdf>>

<sup>6</sup> Compare United Nations Framework Convention on Climate Change, 31 I.L.M. 849 (1992) [UNFCCC], preamble, para. 1: ‘Acknowledging that change in the Earth’s climate and its adverse effects are a common concern of humankind.’ As of 11 March 2011, 195 parties (including the European Union) have ratified the convention. See UNFCCC, Status of Ratification, <[http://unfccc.int/essential\\_background/convention/status\\_of\\_ratification/items/2631.php](http://unfccc.int/essential_background/convention/status_of_ratification/items/2631.php)>. Compare also Convention on Biological Diversity, 31 I.L.M. 818 (1992) [CBD], preamble, para. 3: ‘Affirming that the conservation of biological diversity is a common concern of humankind.’ As of 11 March 2011, 193 parties (including the European Union) have ratified the convention. See CBD, status of ratification, <<http://www.cbd.int/information/parties.shtml>>.

<sup>7</sup> UNFCCC, *supra* note 6.

<sup>8</sup> *Ibid.*, Article 2.

<sup>9</sup> *Ibid.*

<sup>10</sup> Compare Bali Action Plan, UNFCCC, 13th Session, Bali, Indonesia, 3-15

and objectives of other relevant international conventions and agreements.’<sup>11</sup> As the negotiations have progressed, numerous authors have underscored the opportunities to combine biodiversity conservation with climate change mitigation.<sup>12</sup> The contours of this process came into focus at the sixteenth Conference of the Parties (COP), with the adoption of the so-called Cancun Agreements, which include a chapter on REDD as well as a list of ‘safeguards.’<sup>13</sup> The safeguards are chiefly meant to address REDD’s environmental and social impact.<sup>14</sup> The present article does not provide a

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December 2007, Decision 1/CP.13, UN Doc. FCCC/CP/6/Add.1 (2007) at 1(b)(iii). Whereas negotiations initially focused on reducing emissions from deforestation and forest degradation in developing countries only, the concept was subsequently expanded to include ‘the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries.’ This ensemble of activities is commonly referred to with the acronym ‘REDD+’. For the sake of expediency, the present article will only use the acronym REDD to encompass also this enlarged scope.

<sup>11</sup> Decision 2/CP.13 on Reducing Emissions from Deforestation in Developing Countries: Approaches to Stimulate Action, UN Doc. FCCC/CP/6/Add.1 (2007), preamble, para. 9.

<sup>12</sup> See, among others, T. Pistorius et al., *Greening REDD+: Challenges and Opportunities for Forest Biodiversity Conservation* (2010); C.A. Harvey, B. Dickson, and C. Kormos, *Opportunities for Achieving Biodiversity Conservation through REDD* 3 Conservation Letters 53 (2010); J. Busch et al., *Biodiversity Co-Benefits of Reducing Emissions from Deforestation under Alternative Reference Levels and Levels of Finance* 4 Conservation Letters 2 (2011) 110-15; B. Dickson and M. Osti, *What Are the Ecosystem-Derived Benefits of REDD+ and Why Do They Matter?* Multiple Benefits Series 1, Prepared on behalf of the UN-REDD Programme (2010); L. Miles, E. Dunning, and N. Doswald, *Safeguarding and Enhancing the Ecosystem Derived Benefits of REDD+*, Multiple Benefits Series 2, Prepared on behalf of the UN-REDD Programme (2010).

<sup>13</sup> Decision 1/CP.16 on Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention, UN Doc. FCCC/CP/7/Add.1 (2010) at IIIc and Appendix I, respectively.

<sup>14</sup> In this regard, the agreements assert that when undertaking REDD activities ‘the following safeguards should be promoted and supported: (a) That actions complement or are consistent with the objectives of national forest programmes and relevant international conventions and agreements; (b) Transparent and effective national forest governance structures, taking into account national legislation and sovereignty; (c) Respect for the knowledge and rights of indigenous peoples and members of local communities, by taking into account relevant international obligations, national circumstances and laws, and noting that the United Nations General Assembly has adopted the United Nations Declaration on the Rights of Indigenous Peoples; (d) The full and effective participation of relevant stakeholders, in particular indigenous peoples and local communities ...; (e) That actions are consistent with the

comprehensive overview of all safeguards, but it focuses only on those that are relevant to the conservation of biodiversity.

Biodiversity safeguards present an opportunity for investigating how REDD may enhance concerted action to simultaneously achieve the objectives of the UNFCCC and the Convention on Biological Diversity (CBD) in the forest sector.<sup>15</sup> The legal debate on REDD was initiated by seminal works by Charlotte Streck.<sup>16</sup> Numerous authors have since sought to shed light on technical questions associated with economic incentives for protecting forests in developing countries<sup>17</sup> as well as with broader governance challenges facing REDD.<sup>18</sup> Earlier works have analyzed conflicts between obligations under the CBD and afforestation and reforestation projects under the Clean Development Mechanism (CDM).<sup>19</sup> Fewer authors have

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conservation of natural forests and biological diversity, ensuring that the actions...are not used for the conversion of natural forests, but are instead used to incentivize the protection and conservation of natural forests and their ecosystem services, and to enhance other social and environmental benefits; (f) Actions to address the risks of reversals; (g) Actions to reduce displacement of emissions.' *Ibid.*, Appendix 1 at 2.

<sup>15</sup> CBD, *supra* note 6.

<sup>16</sup> See C. Streck and S.M. Scholz, *The Role of Forests in Climate Change* 82 Int'l Affairs 5 at 861-79 (2006); C. Streck, ed., *Carbon and Climate Law Review*, Special Issue: Climate Policy, Carbon Markets and Forestry, volume 3 (2008); C. Streck et al., eds., *Climate Change and Forests: Emerging Policy and Market Opportunities* (2008).

<sup>17</sup> See, among others, R. O'Sullivan and R. Saines, *International Market Solutions to Protect Tropical Rainforests*, in David Freestone and Charlotte Streck, eds., *Legal Aspects of Carbon Trading: Kyoto, Copenhagen, and Beyond*, 583 (2009); Baker and McKenzie, *Background Analysis of REDD: Regulatory Frameworks* (2009); D. Zarin et al., *Reducing Emissions from Deforestation and Degradation (REDD): An Options Assessment* (2009).

<sup>18</sup> Compare I. Fry, *Reducing Emissions from Deforestation and Forest Degradation: Opportunities and Pitfalls in Developing a New Legal Regime* 17 R.E.C.I.E.L. 166 (2008); J. Costenbader, ed., *Legal Frameworks for REDD: Design and Implementation at the National Level*, IUCN Environmental Policy and Law Paper No. 77 (2009); L. Cotula and J. Mayers, *Tenure in REDD: Start-Point or Afterthought?* Natural Resource Issues No. 15, International Institute for Environment and Development. (2009); L. Peskett et al., *Making REDD Work for the Poor* (2008); and F. Lesniewska, *REDD: The Copenhagen Effect* 6 Law, Environment and Development Journal 102 (2010).

<sup>19</sup> C.M. Pontecorvo, *Interdependence between Global Environmental Regimes: The Kyoto Protocol on Climate Change and Forest Protection* 59 Heidelberg J. Int'l. L. 709 (1999); F. Jacquemont and A. Caparrós, *The Convention on Biological Diversity and the Climate Change Convention Ten Years after Rio: Towards a Synergy of the Two Regimes?* 11 R.E.C.I.E.L. 169 (2002); I.

attempted to position REDD within the broader theoretical context of international environmental law.<sup>20</sup>

The present article builds upon this literature to investigate REDD's potential to combine biodiversity conservation with climate change mitigation. In order to ascertain this potential, the article reviews selected aspects of the debate on REDD safeguards, analyzing them through the lens of enhanced cooperation to achieve the objectives of the UNFCCC and the CBD. After an introduction on the notion of REDD and its possible biodiversity benefits and risks, the article identifies challenges to effectively combine climate change mitigation with biodiversity conservation in the forest sector. The guidance provided so far by the CBD and the UNFCCC COPs is assessed in light of developments at the meetings held in 2010. The conclusions underscore how the debate on REDD safeguards may facilitate the harmonization of overlapping obligations under the two conventions.

## 1. Forests, Climate Change, and Biodiversity

Forests host the world's most biodiverse terrestrial ecosystems, providing numerous services, such as climate and water quality regulation and soil formation.<sup>21</sup> Millions of

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Sagemüller, *Forest Sinks under the United Nations Framework Convention on Climate Change and the Kyoto Protocol: Opportunity or Risk for Biodiversity?* 31 Col. J. Env't'l L. 189 (2006); J. Schwartz, 'Whose Woods These Are I Think I Know': *How Kyoto May Change Who Controls Biodiversity* 14 N.Y.U. Env't'l L. J. (2006); and H. van Asselt, F. Sindico, and M.A. Mehling, *Global Climate Change and the Fragmentation of International Law* 30 Law & Policy 423 (2008).

<sup>20</sup> See H. van Asselt, *Managing the Fragmentation of International Environmental Law: Forests at the Intersection of the Climate and Biodiversity Regimes* N.Y. U. J. Int'l L. and Pol. [forthcoming]; W. Boyd, *Ways of Seeing in Environmental Law: How Deforestation Became an Object of Climate Governance* 37 Ecol. L. Q. (2010); A. Long, *Global Climate Governance to Enhance Biodiversity and Well-Being: Integrating Non-State Networks and Public International Law in Tropical Forests* 41 Env't'l L. 1 (2011).

<sup>21</sup> See Secretariat of the Convention on Biological Diversity, *Sustainable Forest Management, Biodiversity and Livelihoods: A Good Practice Guide*, at 5 (2009): 'Forest biodiversity underpins a wide range of goods and services for human well-being. Ecologically intact forests store and purify drinking water, they can mitigate natural disasters such as droughts and floods, they help store carbon and regulate the climate, they provide food and produce rainfall, and they provide a vast array of goods for medicinal, cultural and spiritual purposes. The health of forests and the provision of these and further forest

people depend on forests for their livelihoods, fuel, food, and income.<sup>22</sup> Forests also play a key role in the global carbon cycle. While standing forests store carbon, acting as carbon ‘sinks,’ deforestation sends carbon back into the atmosphere, thus rendering forests major carbon ‘sources.’ These emissions are largely associated with deforestation, and to the related problem of forest degradation.<sup>23</sup>

Deforestation and forest degradation are caused by a complex combination of factors, including various market drivers and policy and governance failures that make it more attractive to fell trees than to keep them standing. The extraction of forest resources has increasingly shifted from developed countries, with relatively advanced environmental protection standards, to developing countries, with permissive or poorly enforced forestry policies.<sup>24</sup> Deforestation and forest degradation are especially conspicuous in the tropics,<sup>25</sup> where land clearing by commercial operators has become predominant over subsistence activities.<sup>26</sup> As a result, several tropical countries are rapidly depleting their forests and may lose them altogether by the end of the century.<sup>27</sup> Importing forest products from these regions may therefore be viewed as of way of exporting ecological impacts.<sup>28</sup>

Forest loss raises concerns not only for its impact on carbon emissions, but also on ecosystems. The global trade of timber and agricultural products has put increasing pressure on biodiverse and carbon-rich ‘primary forests.’<sup>29</sup> Remaining

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ecosystem services depend on the diversity between species, the genetic diversity within species, and the diversity of forest types.’

<sup>22</sup> For a recent survey, see A. Angelsen et al., eds., *Measuring Livelihoods and Environmental Dependence: Methods for Research and Fieldwork* (2011).

<sup>23</sup> For the definitions of these terms, see *infra* second section of this article.

<sup>24</sup> P. Meyfroidt, T.K. Rudel and E.F. Lambin, ‘Forest transitions, trade, and the global displacement of land use’ 107 PNAS 20917, (2010), at 1.

<sup>25</sup> FAO, *supra* note 1 at 4.

<sup>26</sup> For an overview, see H. Geist and E. Lambin, *What Drives Tropical Deforestation? A Meta-Analysis of Proximate and Underlying Causes of Deforestation Based on Subnational Case Study Evidence* (LUCC Report Series, 2001).

<sup>27</sup> For example, B.S. Soares-Filho et al. estimate that, under business as usual, deforestation could destroy as much as 40 percent of the Amazon forest by 2050. Compare B.S. Soares-Filho et al., *Modelling Conservation in the Amazon Basin* 440 *Nature* 520 (2006).

<sup>28</sup> A.L. Mayer et al., *Ecology: Importing Timber, Exporting Ecological Impact* 308 *Science* 359 at 359 (2005).

<sup>29</sup> Primary forests are defined as ‘naturally regenerated forest of native species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed.’ Currently, only one-third of the



tropical forests provide precious ecosystem services, whose substitution may be impossible, especially with regard to their contribution to climate stability, watershed and soil protection, and biodiversity conservation. For example, it has been estimated that if as little as 30 percent of the Amazon rainforest is cleared, it may no longer generate enough rainfall to sustain itself and would convert into a savannah system.<sup>30</sup> These matters are not just of concern for countries that presently harbour forests. Increased awareness of dangers associated with forest loss has led to a long strife to promote sustainable forest management, both at the international and at the domestic level.<sup>31</sup> However, differences among regions remain marked, and it has proven difficult to devise and enforce a comprehensive global instrument for protecting forest.

So far, states have failed to effectively address the global drivers of deforestation and, more specifically, the displacement of environmental pressure associated with the international trade of timber and agricultural products.<sup>32</sup> Forests are chiefly regarded as natural resources in international law, which recognizes that states have the sovereign right to exploit their forest resources according to their own environmental policies, coupled with the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction.<sup>33</sup> The protection of forests'

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world's remaining forest is categorized as primary forests, and this ratio is steadily decreasing. FAO, *supra* note 1 at 211 and 192, respectively. The size of the area of primary forest is an important indicator of the state of forest ecosystems. *Ibid.* at 52.

<sup>30</sup> Compare D.C. Nepstad et al., *Interactions among Amazon Land Use, Forests and Climate: Prospects for a Near-Term Forest Tipping Point* 363 *Philosophical Transactions of the Royal Society* 1737 at 1740 (2008); and, more recently, S.L. Lewis et al., *The 2010 Amazon Drought* 331 *Science* 554 (2011).

<sup>31</sup> See Kunzmann, *supra* note 3.

<sup>32</sup> For a comprehensive review, see Rayner, Buck, and Katila, *supra* note 4.

<sup>33</sup> Compare Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests (Forest Principles), 31 I.L.M. 881 (1992) at 1(a): 'States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies and have the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.' This principle recalls Principle 21 of the Stockholm Declaration on the Human Environment, 16 June 1972, UN Doc. A/CONF.48/14/Rev.1



ecosystem services arguably requires that sovereignty be exercised in a way that is consistent with international obligations on issues regarded as a common concern of all states, such as biodiversity protection and climate change.<sup>34</sup> In this context, the debate on REDD provides new momentum to co-ordinate efforts to achieve the objectives of the CBD and the UNFCCC in the forest sector.

## 2. What Is REDD?

Forests are both carbon sinks and sources under the UNFCCC,<sup>35</sup> which specifically mentions that policies and measures to deal with climate change should ‘be comprehensive, cover all relevant sources, sinks and reservoirs of greenhouse gases and adaptation, and comprise all economic sectors.’<sup>36</sup> This mandate has to date only been partially fulfilled in connection with forests, chiefly for reasons related to the approach undertaken with the Kyoto Protocol to the convention.<sup>37</sup>

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(1972); and Principle 2 of the Rio Declaration on Environment and Development, 14 June 1992, UN Doc. A/CONF.151/5/Rev.1 (1992). Principle 21 of the Stockholm Declaration may be regarded as a statement of customary international law, which appears also in Article 3 of the CBD and in the preamble of the UNFCCC. For an assessment on the status of the principle in international law, compare P.M. Dupuy, *Soft Law and the International Law of the Environment* 12 Michigan J. Int’l L. 420 at 422 (1990-1).

<sup>34</sup> See note 6 in this article and corresponding text.

<sup>35</sup> UNFCCC, *supra* note 6, Article 4.1 (c, d). The UNFCCC defines ‘sources’ as any process or activity which releases a greenhouse gas, an aerosol or a precursor of a greenhouse gas into the atmosphere, while ‘sinks’ are any process, activity or mechanism that removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas from the atmosphere (Article 1.8-9).

<sup>36</sup> *Ibid.*, Article 3.3. Article 4.1 further adds ‘[a]ll Parties ... shall ... (c) promote and cooperate in the development, application and diffusion, including transfer, of technologies, practices and processes that control, reduce or prevent anthropogenic emissions of greenhouse gases not controlled by the Montreal Protocol in all relevant sectors, including ... forestry; (d) promote sustainable management, and promote and cooperate in the conservation and enhancement, as appropriate, of sinks and reservoirs of all greenhouse gases not controlled by the Montreal Protocol, including ... forests.’ Forests and forestry therefore feature unequivocally among the measures to mitigate the adverse effects of climate change.

<sup>37</sup> Kyoto Protocol to the United Nations Framework Convention on Climate Change, 37 I.L.M. 32 (1998). As of 12 March 2011, the Kyoto Protocol had been ratified by 193 countries (including the European Union), with the United States not having ratified. See Kyoto Protocol, Status of Ratification, <[http://unfccc.int/kyoto\\_protocol/status\\_of\\_ratification/items/2613.php](http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php)>.

Pursuant to the Kyoto Protocol, most developed country parties to the convention agreed to binding quantified emission limitation and reduction objectives in selected sectors of their economies for the period between 2008 and 2012.<sup>38</sup> These reduction commitments centre on emissions from the combustion of fossil fuels (or ‘brown carbon’), which is the largest source of anthropogenic emissions in developed countries. Greenhouse gas removals and emissions from forests can account towards their emission inventories in two ways: (1) as part of a country’s national balance of emissions and removals from land use, land-use change, and forestry and (2) as credits from project activities undertaken in developing country parties under the CDM. The CDM enables the creation of credits for emission reduction projects in developing countries, which may be purchased to meet developed country parties’ commitments.<sup>39</sup> At present, the only forestry activities eligible for CDM credits are reforestation and afforestation, but not avoided deforestation. This exclusion was motivated by methodological concerns that were initially perceived as insurmountable obstacles to incentivizing avoided deforestation as well as by concerns of diverting attention away from the reduction of emissions associated with the combustion of fossil fuels.<sup>40</sup>

The debate on avoided deforestation as an option to take action for climate change mitigation gained new momentum in 2005. The initial proposal was to ‘draw developing countries towards emission reductions’ by addressing emissions from deforestation, either by including them in the Kyoto Protocol or through an optional protocol to the UNFCCC.<sup>41</sup> The ensuing debate resulted in the establishment of a program of work on methodological issues related to a range of policy approaches and positive incentives for reducing emissions from deforestation and forest degradation

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<sup>38</sup> *Ibid.*, Annex A and B.

<sup>39</sup> *Ibid.*, Article 12.

<sup>40</sup> For an overview, see D. Humphreys, *The Politics of ‘Avoided Deforestation’: Historical Context and Contemporary Issues* 10 Int’l Forestry Rev. 433 (2008); P. Graichen, *Can Forestry Gain from Emissions Trading? Rules Governing Sinks Projects Under the UNFCCC and the EU Emissions Trading System* 14 R.E.C.I.E.L. 11 (2005).

<sup>41</sup> *Reducing Emissions from Deforestation in Developing Countries: Approaches to Stimulate Action: Submission from Parties*, Conference of the Parties to the UNFCCC, 11th Sess., Montreal, Canada, UN Doc FCCC/CP/Misc.1 (2005) at 8.

in developing countries.<sup>42</sup> Negotiations have since progressed rapidly and several proposals for REDD have been advanced, with significant differences in scope, reference levels for carbon crediting, and other design features.<sup>43</sup>

The newly found enthusiasm for addressing emissions from avoided deforestation under the umbrella of the UNFCCC might be explained by a number of factors, including scientific progress on how to address concerns previously raised.<sup>44</sup> In addition, there is increased awareness that avoiding deforestation is affected by time constraints and that the window of opportunity is closing rapidly. As deforestation is projected to decrease when the remaining forests become less accessible, the immediate and long-term benefits of avoided deforestation are going to be higher the sooner it starts.<sup>45</sup>

Influential reports have also indicated that avoided deforestation may be a relatively inexpensive climate change mitigation option, comparing favourably with the costs of lowering emissions in other sectors, because of the potential of achieving significant cost-effective emission reductions in the near term.<sup>46</sup> Although these

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<sup>42</sup> Subsidiary Body for Scientific and Technological Advice (SBSTA), *Report on a Workshop on Reducing Emissions from Deforestation in Developing Countries*, UN Doc. FCCC/SBSTA/10 (2006); SBSTA, *Report on the Second Workshop on Reducing Emissions from Deforestation in Developing Countries*, UN Doc. FCCC/SBSTA/3 (2007); SBSTA, *Report on the Workshop on Methodological Issues Relating to Reducing Emissions from Deforestation and Forest Degradation in Developing Countries*, UN Doc FCCC/SBSTA/11 (2008).

<sup>43</sup> For a review, see C. Parker et al., *The Little REDD+ Book: A Guide to Governmental and Non-Governmental Proposals for Reducing Emissions from Deforestation and Degradation* (2009).

<sup>44</sup> For an overview, see Boyd, *supra* note 20 at 878-98.

<sup>45</sup> See B. Fisher et al., *Issues Related to Mitigation in the Long Term Context*, in B. Metz et al., eds., *Climate Change 2007: Mitigation of Climate Change Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, 171 at 188 (2007).

<sup>46</sup> According to the IPCC, 'a sustainable forest management strategy aimed at maintaining or increasing forest carbon stocks, while producing an annual sustained yield of timber, fibre or energy from the forest, will generate the largest sustained mitigation benefit.' G.J. Nabuurs et al., *Forestry in Climate Change 2007: Mitigation, Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, edited by B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, and L.A. Meyer, at 73 (2007). at 543. Compare also N. Stern, *The Economics of Climate Change: The Stern Review*, at 13 (2007); and, more generally, J. Eliasch, *Climate Change: Financing Global Forests*, Eliasch Review (2008).

assumptions have been questioned by subsequent studies, REDD has since 2007 become central to negotiations on long-term co-operative action under the UNFCCC.<sup>47</sup>

Whereas negotiations initially focused only on reducing emissions from deforestation and forest degradation in developing countries (hence, the acronym REDD), the concept was subsequently expanded to include ‘the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries’ (commonly referred to with the acronym REDD+).<sup>48</sup> This widening of scope was the result of the realization that a narrower focus may create perverse incentives for carbon leakage and biodiversity loss.<sup>49</sup> For example, countries with high forest cover and low deforestation rates may be prompted to increase deforestation in order to benefit from REDD payments. So while deforestation and forest degradation have remained immediate priorities, REDD now encompasses also the conservation of forest carbon stocks, the sustainable management of forests and the enhancement of carbon stocks in developing country parties.<sup>50</sup>

Within this enlarged scope, REDD may engender the first international system of payments for ecosystem services provided by forests.<sup>51</sup> The underpinning for this approach derives from the idea that forests’ ecosystem services are public goods and that people who ensure these services should be incentivized to continue doing so.<sup>52</sup> The objective is to preserve forests during the risky development phase when

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<sup>47</sup> For an overview, see H. Gregersen et al., *Does the Opportunity Cost Approach Reflect the Real Cost of REDD+?* (2010); N. Dyer and S. Counsell, *McREDD: How McKinsey ‘Cost-Curves’ Are Distorting REDD* (2010); A. Angelsen, *What Does REDD+ Really Cost?* (2011).

<sup>48</sup> See Decision 1/CP.13, *supra* note 10 at 1(b)(iii); and Decision 2/CP.13, *supra* note 11 at 11.

<sup>49</sup> For an analysis, see K. Lawlor et al., *Expanding the Scope of International Terrestrial Carbon Options: Implications of REDD+ and Beyond* (2010).

<sup>50</sup> See Decision 1/CP.16, *supra* note 13 at 70.

<sup>51</sup> Payments for ecosystem services can be defined as transactions where a well-defined ecosystem service or land use likely to secure that service is ‘bought’ by at least one buyer from at least one provider. See *The Economics of Ecosystems and Biodiversity (TEEB), National and International Policy Makers, Part 3, Chapter 5: Rewarding Benefits through Payments and Markets*, at 6 (2009). Compare also E. Gómez-Baggethun et al., *The History of Ecosystem Services in Economic Theory and Practice: From Early Notions to Markets and Payment Schemes* 69 *Ecological Economics* 1209 at 1214 (2010).

<sup>52</sup> S. Olmstead and N. Keohane, *Markets and the Environment*, at 70 (2007).

countries are most likely to deplete them.<sup>53</sup> REDD could streamline the protection of forests' ecosystem services, capturing them through priced rewards, and payments may also extend to premiums for biodiversity conservation.<sup>54</sup> These payments would lead to the internalization of 'externalities'<sup>55</sup> and 'bridge the forest transition' currently affecting developing countries.<sup>56</sup> By establishing an international system of payments to incentivize the continued provision of forests' ecosystem services, REDD may enable developing countries to merge forest conservation with climate change mitigation, thus providing a novel solution to the vexed problem of forest loss. In this regard, REDD has been described as 'potentially the most far-reaching and powerful policy instrument for influencing tropical forest carbon stocks and, hence, tropical forest conservation.'<sup>57</sup>

The Cancun Agreements encouraged developing country parties to contribute to climate change mitigation through REDD activities, and they have established a framework to flesh out and negotiate the details. The envisioned process will take place in phases, starting with the development of national strategies, followed by an implementation phase, which will include specific action for measuring, reporting, and verifying the achieved results.<sup>58</sup> In particular, for the first phase the agreements request developing country parties intending to undertake REDD activities to develop a national strategy or action plan; a national forest reference emission level and/or forest reference level; and a robust and transparent national forest monitoring

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<sup>53</sup> M. Dutschke and A. Angelsen, *How Do We Ensure Permanence and Assign Liability?* in A. Angelsen, ed., *Moving Ahead with REDD*, at 78 (2008).

<sup>54</sup> See the discussion later in the second section of this article.

<sup>55</sup> TEEB, *Climate Issues Update*, at 10 (2009).

<sup>56</sup> The theory of forest transition is deployed to explain the fact that initially a country has a high and relatively stable portion of land under forest cover. When deforestation begins, it normally accelerates and forest cover reduces rapidly. At some point, however, deforestation slows and forest cover stabilizes and begins to recover. This process has been completed in most developed countries, whereas it is still underway in numerous developing countries. As explained by A. Angelsen, 'forest transition is not a law of nature, and transitions are influenced by national contexts, global economic forces and government policies.' With appropriate policies, countries may be able to 'bridge the forest transition,' which is the main aim of REDD. Compare A. Angelsen, *Introduction*, in A. Angelsen, ed., *Realising REDD+*, 3 at 4 (2009).

<sup>57</sup> C.M. Stickler et al., *The Potential Ecological Costs and Co-Benefits of REDD: A Critical Review and Case Study from the Amazon Region* 15 *Global Change Biology* 2803 at 2804 (2009).

<sup>58</sup> Decision 1/CP.16, *supra* note 13 at 73.

system.<sup>59</sup>

As mentioned in the Bali Action Plan, measures to curb unsustainable forest uses may also ‘promote co-benefits and complement the aims and objectives of other relevant international conventions and agreements.’<sup>60</sup> The terms co-benefits (or multiple benefits) has increasingly appeared in negotiations to indicate REDD’s potential for creating positive collateral effects.<sup>61</sup> These include both ecosystem-derived benefits as well as other social benefits, as specifically mentioned in the Cancun Agreements.<sup>62</sup> ‘Ecosystem-derived benefits’ may be defined as those that are direct side-effects of maintaining, increasing, and enhancing forest carbon stocks through REDD—that is, biodiversity conservation and ecosystem services other than carbon.<sup>63</sup>

The conservation of biodiversity, however, does not necessarily correspond with carbon sequestration. In fact, a focus on maximizing forest carbon stocks may have negative impacts on the provision of other ecosystem services.<sup>64</sup> For example, plantations of invasive species could provide rapid carbon sequestration at the expense of other natural ecosystems with a negative impact on biodiversity.<sup>65</sup> So, while REDD may bring about positive gains for forest and biodiversity conservation, the extent of these gains will depend on its design and implementation, as the next section of this article explains.

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<sup>59</sup> *Ibid.* at 71.

<sup>60</sup> Decision 2/CP.13, *supra* note 11.

<sup>61</sup> For an overview, see UN-REDD, Multiple Benefits-Issues and Options for REDD (2009).

<sup>62</sup> See Decision 1/CP.16, *supra* note 13, Appendix I at 1.

<sup>63</sup> *Ibid.*, at 1(d), where the decision asserts that REDD activities should ‘be consistent with the objective of environmental integrity and take into account the multiple functions of forests and other ecosystems.’ See also Miles, Dunning, and Doswald, *supra* note 12 at 2.

<sup>64</sup> For an overview, see CBD Secretariat, Connecting Biodiversity and Climate Change Mitigation and Adaptation: Report of the Second Ad Hoc Technical Expert Group on Biodiversity and Climate Change (CBD Technical Series, 2009).

<sup>65</sup> E. Nelson et al., *Efficiency of Incentives to Jointly Increase Carbon Sequestration and Species Conservation on a Landscape* 105 Proceedings of the National Academy of Sciences 9471 (2008).

## II. REDD DESIGN IMPLICATIONS FOR BIODIVERSITY CONSERVATION

The Cancun Agreements are but the first step of a long process that will serve to define the details of REDD. In the meanwhile, demonstration activities are already underway,<sup>66</sup> and numerous multilateral and bilateral processes have been established with the aim to support ‘REDD readiness,’<sup>67</sup> most notably the Forest Carbon Partnership Facility (FCPF) and the UN Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD Programme).

The FCPF was launched in 2007 to assist tropical and subtropical forest countries develop systems and policies for REDD and eventually provide them with performance-based payments for emission reductions.<sup>68</sup> In particular, the FCPF’s Readiness Fund assists countries in preparing for participation in a large-scale system of REDD incentives. So far, thirty-seven countries have adhered to the FCPF and the majority of them have already submitted so-called ‘REDD Readiness Preparation

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<sup>66</sup> Decision 2/CP.13, *supra* note 11 at 3, *encouraged* parties to ‘explore a range of actions, identify options and undertake efforts, including demonstration activities, to address the drivers of deforestation relevant to their national circumstances, with a view to reducing emissions from deforestation and forest degradation and thus enhancing forest carbon stocks due to sustainable management of forests.’

<sup>67</sup> The term ‘REDD readiness’ is used to refer to a country’s capacity to carry out REDD activities and handle REDD financing effectively and equitably. For an overview on REDD readiness activities, see <<http://reddplusdatabase.org/arrangement/list>>. Compare also the website of the UN-REDD Programme, <<http://www.un-redd.org/AboutUNREDDProgramme/NationalProgrammes/tabid/584/Default.aspx>>; and that of the Forest Carbon Partnership, <<http://www.forestcarbonpartnership.org/fcp/node/203>>. Other major international endeavours to promote REDD readiness include the Interim REDD+ Partnership, <<http://reddpluspartnership.org/en/>>. The most notorious bilateral activities undertaken to date are the ones between Norway and Brazil, Indonesia, Guyana, and Mexico, respectively. See <<http://www.regjeringen.no/en/>>. For a review, see NORAD, Real-Time Evaluation of Norway’s International Climate and Forest Initiative Contributions to a Global REDD+ Regime 2007-2010 (2011).

<sup>68</sup> See Forest Carbon Partnership Facility (FCPF), <<http://www.forestcarbonpartnership.org/fcp/>>.



Proposals.’<sup>69</sup> The FCPF also includes a Carbon Fund intended to pilot generation and payment for emission reductions for REDD countries, which is expected to become operational in 2011. The World Bank provides secretariat services for the FCPF, acts as a trustee for its funds, and supplies technical support to REDD country participants.<sup>70</sup>

The UN-REDD Programme was established in 2008 by the United Nations Food and Agriculture Organization (FAO), the United Nations Development Programme, and the United Nations Environment Programme.<sup>71</sup> The program supports the development and implementation of national REDD strategies in developing countries, encompassing activities such as capacity development for governance structures, stakeholder engagement, monitoring systems, and activities to address multiple benefits, as well as payment and benefit structures for REDD. So far the UN-REDD Programme has approved funding for thirteen pilot countries, whereas another twenty-two countries enjoy partner status, which entails their potential to become eligible for funding in future.<sup>72</sup>

In spite of these progresses, numerous outstanding technical and methodological matters remain to be addressed. In particular, three key challenges face the integration of biodiversity conservation in the REDD mechanism. The first issue is the elaboration of definitions of forest and REDD activities that do not create perverse incentives to biodiversity loss. The second is the elaboration of adequate monitoring tools to verify the impact of REDD activities on forest biodiversity as well as on carbon storage. The third is the identification of financing tools to secure funding for pursuing biodiversity co-benefits. This section summarizes the design questions that are most likely to influence REDD’s potential to contribute to biodiversity conservation.

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<sup>69</sup> See <<http://www.forestcarbonpartnership.org/fcp/node/25>>.

<sup>70</sup> For a review of the FCPF activities, see FCPF, *Harvesting Knowledge on REDD-plus: Early Lessons from the FCPF Initiative and Beyond* (2010).

<sup>71</sup> See UN Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries, <<http://www.un-redd.org/>>. [UN-REDD Programme].

<sup>72</sup> See UN-REDD Programme, <<http://www.un-redd.org/AboutUNREDDProgramme/NationalProgrammes/tabid/584/Default.aspx>>. For a review of the UN-REDD Programme activities, see UN-REDD, *2010 Year in Review* (2010).

## 1. Definitional Issues

As mentioned earlier, REDD may result in the establishment of an international system for the payment of ecosystem services provided by forests in developing countries, capturing them through priced rewards.<sup>73</sup> In this connection, the selection of activities to incentivize is critical. Although parties have agreed on the activities to include under the umbrella of REDD,<sup>74</sup> they are yet to adopt definitions for them. The definition of these activities and of the notion of forest are likely to have significant implications for REDD's impact on biodiversity.

### *A. Forest*

The scope of REDD activities chiefly depends on the definition of the term 'forest.'<sup>75</sup> According to the definition of forest adopted for the purposes of the Kyoto Protocol, a forest is 'an area of more than 0.05–1.0 hectares with a minimum "tree" crown cover of 10–30%, with "tree" defined as a plant with the capability of growing to be more than 2–5 metres tall.'<sup>76</sup> This definition encompasses major variations in forest types and conditions, ranging from dry, open forests with slow-growing, scattered trees and as little as 10 percent crown cover to dense, highly productive moist forests.<sup>77</sup> Most importantly, the definition fails to distinguish between natural forests and plantations, despite considerable differences in species composition, ecology, biodiversity value, and safety in carbon storage.<sup>78</sup>

The ambiguities underlying the definition of forest under the Kyoto Protocol have led to concerns over the ecological integrity of afforestation and reforestation

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<sup>73</sup> See note 51 in this article and corresponding text.

<sup>74</sup> See note 48 in this article and corresponding text.

<sup>75</sup> See FAO, *Definitional Issues Related to Reducing Emissions from Deforestation in Developing Countries: Workshop on Reducing Emissions from Deforestation in Developing Countries*, Rome, 30 August and 1 September 2006 (2006).

<sup>76</sup> Decision 16/CMP.1 on Land Use, Land-use Change and Forestry, UN Doc. FCCC/KP/CMP/8/Add.3 (2005), Annex at 1A.

<sup>77</sup> For a discussion on the implications of this definition in the framework of the Kyoto Protocol, see T. Neeff, H. von Luepke, and D. Schoene, *Choosing a Forest Definition for the Clean Development Mechanism*, FAO Forests and Climate Change Working Paper 4 (2006).

<sup>78</sup> Harvey, Dickson, and Kormos, *supra* note 12 at 55.

projects under the CDM.<sup>79</sup> Although the implementation of afforestation and reforestation projects was generally meant to ‘contribute’ to the conservation of biodiversity and the sustainable use of natural resources,<sup>80</sup> this requirement was not strictly enforced. The CDM rules for afforestation and reforestation projects<sup>81</sup> do not include specific safeguards for biodiversity, and some registered projects have raised concerns over their impact on biodiversity.<sup>82</sup>

If the REDD mechanism adopts the definition of forest under the Kyoto Protocol, a wide range of forest contexts may fall within its scope, with great differences in carbon stocks, carbon sequestration potential, biodiversity value, and resilience to climate change: first, ‘primary forests’, which are more carbon dense and biologically diverse than other forest ecosystems;<sup>83</sup> second, ‘modified natural forests,’ that is, forests that have been logged or degraded and normally have lower carbon stocks and less biodiversity than primary forests; and, third, ‘planted forests,’ which may be defined as ‘forest predominantly composed of trees established through planting and/ or deliberate seeding.’ Planted forests may consist of monocultures of non-native species, with low biodiversity value and low resilience to climate change.<sup>84</sup>

The implications of including these different forest landscapes in REDD are likely to be significant and may result, for example, in channelling funds to non-native tree species plantations, thus raising questions on the environmental and ecological integrity of REDD. Such concerns have prompted observers to call for the elaboration of adequate definitions of forest and forest activities,<sup>85</sup> as further explained in the next section.

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<sup>79</sup> See, *inter alia*, Pontecorvo, *supra* note 19; Jacquemont and Caparrós, *supra* note 19; Sagemüller, *supra* note 19.

<sup>80</sup> Decision 16/CMP.1, *supra* note 76 at 1(e).

<sup>81</sup> Decision 5/CMP.1 on the Modalities and Procedures for Afforestation and Reforestation Project Activities under the Clean Development Mechanism in the First Commitment Period of the Kyoto Protocol, UN Doc. FCCC/KP/CMP/8/Add.1 (30 March 2006). For an analysis, see Jacquemont and Caparrós, *supra* note 19; van Asselt, Sindico, and Mehling, *supra* note 19.

<sup>82</sup> For a discussion, see Long, *supra* note 20 at 53.

<sup>83</sup> See note 27 in this article.

<sup>84</sup> FAO, *supra* note 1 at 212.

<sup>85</sup> See, among others, Harvey, Dickson, and Kormos, *supra* note 12; F. Pearce, *Will REDD Preserve Forests or Merely Provide a Fig Leaf?* Yale Environment 360, <<http://e360.yale.edu/content/feature.msp?id=2277>>; F.E. Putz and K.H.

*B. REDD Activities*

A wide range of activities fall within the enlarged scope of REDD. To begin with, emissions reductions could be achieved by ‘reducing emissions from deforestation.’<sup>86</sup> The term has not yet been defined for the purposes of REDD, but under the Kyoto Protocol ‘deforestation’ means ‘direct human-induced conversion of forested land to non-forested land.’<sup>87</sup> As mentioned earlier, the clear-cutting of mature trees associated with forest conversion to crops and livestock is currently the largest source of carbon emissions from the forest sector.<sup>88</sup> Avoided deforestation is therefore likely to remain the main focus of REDD.

Second, REDD activities may reduce emissions from ‘forest degradation.’<sup>89</sup> The International Panel on Climate Change (IPCC) has suggested defining forest degradation as ‘direct human-induced long-term loss (persisting for X years or more) of at least Y per cent of forest carbon stocks (and forest values) since time (T) and not qualifying as deforestation.’<sup>90</sup> Although the definition remains problematic, the underlying idea is that degradation relates to forests’ carbon intensity rather than their size.<sup>91</sup> The causes of deforestation and forest degradation also tend to be different: while deforestation is primarily driven by the demand for land, degradation is driven by the demand for wood.<sup>92</sup>

Third, REDD may be realized through the ‘sustainable management of forests,’<sup>93</sup> combining sustained wood yields with carbon storage—for example,

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Redford, *Dangers of Carbon Based Conservation* 19 Global Environmental Change 400 (2009); F.E. Putz and K.H. Redford, *The Importance of Defining ‘Forest’: Tropical Forest Degradation, Deforestation, Long-Term Phase Shifts and Further Transitions* 42 Biotropica 10 (2010); Pistorius et al., *supra* note 12.

<sup>86</sup> Decision 1/CP.16, *supra* note 13 at 70(a).

<sup>87</sup> Decision 16/CMP.1, *supra* note 76, Annex at 1(d).

<sup>88</sup> See Nabuurs et al., *supra* note 46 at 543.

<sup>89</sup> Decision 1/CP.16, *supra* note 13 at 70(b).

<sup>90</sup> International Panel on Climate Change (IPCC), Definitions and Methodological Options to Inventory Emissions from Direct Human-Induced Degradation of Forests and Devegetation of Other Vegetation Types, at 16 (2003).

<sup>91</sup> See FAO, *supra* note 1 at 13.

<sup>92</sup> Zarin et al., *supra* note 17 at 13.

<sup>93</sup> Decision 1/CP.16, *supra* note 13 at 70(d).

through reduced impact logging.<sup>94</sup> This concept recalls that of ‘sustainable forest management,’ which has proven controversial in negotiations on an international instrument on forests.<sup>95</sup> While the notion of sustainable forest management has been endorsed and promoted largely by developed countries, numerous low-income countries perceive it as a hindrance to economic development and to the free exploitation of natural resources.<sup>96</sup> Although it is not clear whether the parties will choose to use the term ‘sustainable management of forests’ as a synonym of ‘sustainable forest management,’ they are likely to be confronted with challenges analogous to those that have affected prior efforts to define the term.<sup>97</sup>

Fourth, REDD encompasses ‘the conservation of forest carbon stocks.’<sup>98</sup> Also this term currently lacks a definition. A critical question in this regard is whether the term will include existing protected areas, thus providing additional funding for the conservation of forests that are already under protected status.<sup>99</sup>

Finally, REDD activities include the ‘enhancement of forest carbon stocks.’<sup>100</sup> Here again, the parties have yet to agree on a definition. Carbon stocks enhancement activities may include forest restoration (through natural regeneration, assisted natural regeneration, or planting), rehabilitation, or forest landscape restoration.<sup>101</sup> Most crucially, they may include forest restoration of lands already classified as forests (‘reforestation’) and forestation of non-forest land (‘afforestation’).<sup>102</sup> However, as these activities are already included under the CDM, double counting would have to be avoided. As mentioned earlier, the UNFCCC parties have yet to agree upon the

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<sup>94</sup> Miles, Dunning, and Doswald, *supra* note 12 at 26.

<sup>95</sup> See note 3 in this article.

<sup>96</sup> See Davenport, *Forests and Sustainability* in Rayner, Buck, and Katila, *supra* note 4 at 87.

<sup>97</sup> See Miles, Dunning, and Doswald, *supra* note 12 at 26.

<sup>98</sup> Decision 1/CP.16, *supra* note 13 at 70(c).

<sup>99</sup> Harvey, Dickson, and Kormos, *supra* note 12 at 54.

<sup>100</sup> Decision 1/CP.16, *supra* note 13 at 70(e).

<sup>101</sup> Miles, Dunning, and Doswald, *supra* note 12 at 29.

<sup>102</sup> Under the Kyoto Protocol, afforestation is defined as ‘the direct human-induced conversion of land that has not been forested for a period of at least 50 years to forested land through planting, seeding and/or the human-induced promotion of natural seed sources.’ The related notion of reforestation refers to ‘the direct human-induced conversion of non-forested land to forested land through planting, seeding and/or the human-induced promotion of natural seed sources, on land that was forested but that has been converted to non-forested land.’ See Decision 16/CMP.1, *supra* note 76 at 1(b) and (c).

definition of these activities in connection with REDD. These questions have however already been considered in the framework of the CBD, where some concerns have been expressed.

### *C. Forests and the CBD*

The CBD is the main international instrument for the protection of biodiversity,<sup>103</sup> and it enjoys near universal membership.<sup>104</sup> The convention recognizes biodiversity loss as a global environmental problem and promotes the conservation of biodiversity as a common concern of humankind.<sup>105</sup> The CBD applies to all processes and activities that have, or are likely to have, significant impacts on the conservation and sustainable use of biological diversity undertaken within parties' jurisdiction or control, also beyond the limits of their national jurisdictions.<sup>106</sup> The convention further requires parties to identify and monitor these processes and activities and to regulate the ones whose significant impacts have been ascertained.<sup>107</sup>

Habitat loss, alteration, and fragmentation associated with deforestation and forest degradation are leading causes of species declines.<sup>108</sup> Several provisions in the CBD are therefore directly and indirectly relevant to forests and forest management, even though the text of the convention does not make any explicit reference to forests.<sup>109</sup> The CBD parties have adopted an Expanded Programme of Work on Forest

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<sup>103</sup> The convention defines biological diversity as 'the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems, and the ecological complexes of which they are part; it includes diversity within species between species, and of ecosystems.' CBD, supra note 6, Article 2.

<sup>104</sup> As of 11 March 2011, 193 countries (including the European Union) have ratified the CBD, with the United States being a non-party. See CBD, List of Parties, <<http://www.cbd.int/convention/parties/list/>>.

<sup>105</sup> CBD, supra note 6, preamble, para. 3.

<sup>106</sup> *Ibid.*, Article 4.

<sup>107</sup> *Ibid.*, Article 7(c). Parties are also required, as far as possible and as appropriate, to introduce national procedures requiring environmental impact assessments for activities that may cause significant adverse impacts with a view to avoiding or minimizing those impacts. *Ibid.*, Article 14(1)(a).

<sup>108</sup> Millennium Ecosystem Assessment, *Ecosystems and Human Well-Being: Biodiversity Synthesis*, at 31 (2005).

<sup>109</sup> For an analysis of the role of the CBD in connection with forest governance, see D. Humphreys, *Logjam: Deforestation and the Crisis of Global Governance*, at 191-204 (2006).

Biodiversity,<sup>110</sup> which includes an extensive set of goals, objectives and activities for the conservation of forest biodiversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from the utilization of their genetic resources. The ‘ecosystem approach’ adopted by the CBD as its primary framework for action is also apt to condition parties’ activities in the forest sector.<sup>111</sup> However, states retain significant discretion in implementing the ecosystem approach and the CBD programs of work.

Links between biodiversity protection and climate change mitigation have been increasingly underscored in the framework of the CBD. In 2008, the CBD COP officially sanctioned climate change as a crosscutting issue within the convention and requested that climate change considerations be integrated into each CBD program of work, where relevant and appropriate.<sup>112</sup> The CBD parties have also established an Ad Hoc Technical Expert Group on Biodiversity and Climate Change, first to consider the inter-linkages between biological diversity and climate change<sup>113</sup> and, later on, to develop scientific and technical advice on biodiversity in so far as it relates to climate change.<sup>114</sup> The group’s findings give an overview of the impacts on biodiversity from activities included within the scope of REDD (see Table 1).<sup>115</sup>

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<sup>110</sup> Decision VI/22 on Forest Biological Diversity, UN Doc. UNEP/CBD/COP/6/20 (2002). The CBD COP has established seven thematic programs of work that correspond to some of the major biomes on the planet. Programs of work are the main instruments to achieve commitments enshrined in the Convention and include guidelines for national implementation and tasks for furthering implementation at the international level. Each program includes a vision, basic principles, potential outputs, and timetables to guide future work. See <<http://www.cbd.int/programmes/>>.

<sup>111</sup> The ecosystem approach has been defined as the integrated management of land, water, and living resources that promotes conservation and sustainable use in an equitable way. See Decision V/6 on Ecosystem Approach, UN Doc. UNEP/CBD/COP/5/23 (2000).

<sup>112</sup> Decision IX/16 on Biodiversity and Climate Change, UN Doc. UNEP/CBD/COP/DEC/IX/16 (2008).

<sup>113</sup> CBD Secretariat, *Interlinkages between Biological Diversity and Climate Change: Advice on the Integration of Biodiversity Considerations into the Implementation of the United Nations Framework Convention on Climate Change and Its Kyoto protocol* (CBD Technical Series, 2003).

<sup>114</sup> Decision IX/5 on Forest Biodiversity, UN Doc. UNEP/CBD/COP/DEC/IX/5 (2008), preamble.

<sup>115</sup> CBD Secretariat, *supra* note 64.



**Table 1: Links between biodiversity and REDD+ activities (adapted from SCBD 2009, Annex IV).**

Mitigation activity	Potential benefits	Potential risks	Possible actions
Reducing emissions from deforestation and forest degradation	Reduced forest loss and reduced forest degradation Reduced fragmentation	Leakage into areas of high biodiversity	At national level, prioritizing REDD actions in areas of high biodiversity Develop premiums within incentive measures for biodiversity co-benefits Improving forest governance Promote broad participation
Forest conservation	Conservation of intact forest habitat Reduced fragmentation Enhanced integrity of landscape		Prioritize high biodiversity forests Maintain landscape connectivity Conserve a high diversity of forest types
Sustainable management of forests	Reduced degradation of forests (relative to conventional logging)	Potential encroachment in intact forest, resulting in biodiversity loss	Prioritize sustainable management in areas with already intensive land-use Apply best practice guidelines
Afforestation and reforestation (A/R)	Habitat restoration of degraded landscapes (use of native species and diverse plantings) Enhancement of landscape connectivity	Introduction of invasive and alien species Replacement of native grasslands etc.	Apply best practices Prevent replacement of intact forests, grasslands Enhance landscape connectivity Develop premiums within incentive measures for biodiversity co-benefits

**Source: Pistorius *et al.* (2010)**

As shown in the table, REDD activities that focus on slowing the destruction or degradation of old growth or mature forests appear to do no harm to biodiversity and may even lead to substantial ecological co-benefits.<sup>116</sup> A potentially negative effect could occur in fire-adapted ecosystems, such as tropical woodlands and savannahs, where fire suppression and biomass accumulation could lead to the local disappearance of plant and animal species that depend upon periodic burning.<sup>117</sup> A more dangerous negative effect may be associated with a shift in agricultural and pasture expansion from high-biomass forests to low-biomass native ecosystems.<sup>118</sup>

However, it is activities included under the enlarged scope of REDD that pose the most significant challenges to biodiversity conservation. Afforestation activities, for example, may lead to the replacement of important natural ecosystems by monocultural tree plantations, such as palm oil or eucalyptus. In general, the ecological effects of tree plantations vary depending upon the type of ecosystem that

<sup>116</sup> See Stickler *et al.*, *supra* note 57 at 2816.

<sup>117</sup> *Ibid.* at 2806.

<sup>118</sup> See L. Miles and V. Kapos, *Reducing Greenhouse Gas Emissions from Deforestation and Forest Degradation: Global Land-Use Implications* 320 Science 1454 (2008).

the plantation is replacing.<sup>119</sup> Tree plantations established in degraded landscapes might attract seed dispersal agents, catalyzing the regeneration of plant and animal communities.<sup>120</sup> Still, plantations are intended to be cleared, and, from a biodiversity point of view, they do not represent a permanent habitat. REDD should therefore require a balanced appraisal of tree plantations to discern their benefits and ecological costs.<sup>121</sup>

More generally, REDD should distinguish between ‘primary or natural forests,’ ‘modified-natural forests,’ and ‘planted forests.’<sup>122</sup> This diversification would allow payments to be restricted to the conservation of forest carbon stocks only in primary forests. Such a restriction would, in turn, ease biodiversity concerns over the sustainable management of forests, which could be applied only to modified-natural forests and planted forests.<sup>123</sup> As a result of this arrangement, in forest landscapes subject to ongoing clearing and forest degradation, climate change mitigation and biodiversity conservation could be achieved by reducing deforestation and forest degradation and improving forest management. In forest landscapes that currently experience little deforestation or forest degradation, the conservation of existing primary forests would allow to simultaneously protect carbon stocks and conserve biodiversity. Finally, in forest landscapes that have already been largely cleared and degraded, climate change mitigation and biodiversity conservation could be achieved by enhancing carbon stocks through restoration and improved forest management. Parties have yet to take into consideration suggestions such as these, and developments in negotiations will show how concerns regarding REDD’s impact on biodiversity will be addressed.<sup>124</sup>

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<sup>119</sup> CBD Secretariat, *supra* note 64 at 57. See also J. Barlow et al., *Quantifying the Biodiversity Value of Tropical Primary, Secondary, and Plantation Forests* 14 Proc. Nat. Acad. Sc. U.S.A. 18555 (2007).

<sup>120</sup> J.A. Parrotta, J.W. Turnbull, and N. Jones, *Catalyzing Native Forest Regeneration on Degraded Tropical Lands* 99 Forest Ecol. & Mgmt 1 (1997).

<sup>121</sup> Miles, Dunning, and Doswald, *supra* note 12 at 29-30.

<sup>122</sup> Pistorius et al., *supra* note 12 at 21.

<sup>123</sup> Harvey, Dickson and Kormos, *supra* note 12 at 55.

<sup>124</sup> See the third section of this article.

## 2. Monitoring REDD Co-Benefits

REDD's biodiversity co-benefits may be maximized if REDD activities are implemented in areas of high carbon and high biodiversity.<sup>125</sup> By mapping where these two elements overlap, it may be possible to capture them simultaneously. This action requires the development of adequate tools to identify areas that feature both characteristics.<sup>126</sup>

REDD will entail the monitoring of forest carbon stocks, regardless of the provision of biodiversity co-benefits. In this respect, the Cancun Agreements mandated the Subsidiary Body for Scientific and Technological Advice (SBSTA) to prepare modalities for measuring, reporting, and verifying anthropogenic forest-related emissions by sources as well as removals by sinks, forest carbon stocks and forest area changes resulting from the implementation of REDD activities.<sup>127</sup> The main terms of reference for the development of such modalities are the IPCC guidelines for accounting changes in carbon stocks from land uses, land use changes, and forestry<sup>128</sup> as well as methods and procedures developed outside the UNFCCC processes.<sup>129</sup>

To a certain extent, the monitoring of REDD co-benefits for biodiversity can build upon existing data, such as the information collected for the preparation of the Food and Agriculture Organization's (FAO) Forest Resource Assessments on forest cover, quality, and types, as well as the data in the national reports prepared under the

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<sup>125</sup> V. Kapos and C.A. Ravilious, *Carbon and Biodiversity: A Demonstration Atlas* (2008); and B.B. Strassburg et al., *Global Congruence of Carbon Storage and Biodiversity in Terrestrial Ecosystems* 3 *Conservation Letters* 98 (2010).

<sup>126</sup> A partnership led by the UN Environment Programme World Conservation Monitoring Centre (UNEP WCMC) has already developed maps overlaying information regarding carbon held in the vegetation and soils of terrestrial ecosystems with biodiversity data. See [http://uneptest.whiteoctober.co.uk/carbon-biodiversity-ecosystem-services-interactive-maps\\_517.html](http://uneptest.whiteoctober.co.uk/carbon-biodiversity-ecosystem-services-interactive-maps_517.html) >.

<sup>127</sup> Decision 1/CP.16, *supra* note 13, Appendix II, at (c).

<sup>128</sup> IPCC, *Good Practice Guidance for Land Use, Land-Use Change and Forestry* (2003).

<sup>129</sup> See, in particular, *Global Observation for Forest and Land Cover Dynamics, A Sourcebook of Methods and Procedures for Monitoring, Measuring and Reporting Anthropogenic Greenhouse Gas Emissions and Removals Caused by Deforestation, Gains and Losses of Carbon Stocks in Forests, Remaining Forests, and Forestation*, COP-16 edition (2010).

CBD.<sup>130</sup> The Cancun Agreements asked the SBSTA to develop guidance for providing information on how the safeguards are being ‘addressed and respected.’<sup>131</sup> This is clearly not a request for preparing standards to monitor, measure, and verify REDD’s biodiversity co-benefits. However, if the REDD mechanism is designed to include the provision of such co-benefits, a system to monitor, measure, and verify the impact of REDD activities on biodiversity may be needed.<sup>132</sup>

So far, standards for measuring REDD’s impact on biodiversity have only been developed in the context of certification for the voluntary carbon market.<sup>133</sup> These standards serve to certify projects for investors driven by a desire to promote environmental and social goals that are additional to carbon sequestration. The Climate, Community and Biodiversity Alliance (CCBA) and CARE have also facilitated the preparation of the ‘REDD+ Social and Environmental Standards,’ which are for use by national governments.<sup>134</sup>

The standards consist of principles, criteria, and indicators that define the issues of concern and the required levels of social and environmental performance. In particular, principle 5 requires that REDD activities maintain and enhance biodiversity and ecosystem services.<sup>135</sup> The principle also requests that biodiversity and ecosystem services potentially affected by REDD be identified, prioritized, and mapped,<sup>136</sup> and it prescribes the adoption of measures to maintain and enhance the identified biodiversity and ecosystem service priorities potentially affected.<sup>137</sup> Finally, principle 5 requires that REDD activities do not lead to the conversion of natural

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<sup>130</sup> CBD Secretariat, *supra* note 64 at 58.

<sup>131</sup> Decision 1/CP.16, *supra* note 13, Appendix II, at (b).

<sup>132</sup> Miles, Dunning, and Doswald, *supra* note 12 at 39.

<sup>133</sup> See, for example, Climate, Community and Biodiversity Alliance (CCBA), Climate, Community and Biodiversity Project Design Standards, 2nd edition (2008).

<sup>134</sup> CCBA and ClimateCARE, REDD+ Social and Environmental Standards (2010). <<http://www.climate-standards.org/REDD+/>>. For a discussion, see Long, *supra* note 20 at 66.

<sup>135</sup> CCBA and ClimateCARE, *supra* note 134 at 5.1. According to the standards, ‘principles’ are fundamental statements about the desired outcome and are not designed to be verified. Such principles are meant to be further developed through criteria, which may be therefore regarded as the substance of the standard, setting out the conditions that need to be met in order to deliver a principle.

<sup>136</sup> *Ibid.* at 5.1.1-2.

<sup>137</sup> *Ibid.* at 5.1.3.

forests or other areas that are important for maintaining and enhancing the identified biodiversity and ecosystem service priorities.<sup>138</sup>

Although the standards are the result of a voluntary initiative, they are important terms of reference for the development of a monitoring, reporting, and verification system for the biodiversity co-benefits of REDD.<sup>139</sup> Standards to monitor REDD co-benefits may be eventually formalized in a set of internationally generated and coordinated methodologies, similar to the IPCC guidelines.<sup>140</sup> The use of these methodologies could become a condition for eligibility to access funding under existing international initiatives facilitating REDD<sup>141</sup> and bilateral agreements stipulated to the same effect. Another way to achieve this objective may be by making use of certification.<sup>142</sup> Agricultural commodity roundtables in Latin America, for example, have reportedly started to prohibit the certification of farmers who clear forests or savannahs to plant their crops or do not comply with labour and environmental laws and restrictions on the use of dangerous chemicals.<sup>143</sup>

### 3. Financing REDD Co-Benefits

The main options to generate REDD financing may have different implications for biodiversity co-benefits.<sup>144</sup> First, REDD may be financed via the regulated carbon market. Such an approach would arguably present the advantage of engaging the private sector, thereby mobilizing high levels of financing. A second approach may be to finance REDD via voluntary state contributions or revenues from other fees, fines, and taxes. Whereas carbon market financing would be tied to delivering emission

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<sup>138</sup> *Ibid.* at 5.1.4.

<sup>139</sup> The importance of the standards has been confirmed by the UN-REDD Programme, which explicitly mentioned them as a term of reference for the development of its 'Social and Environmental Principles and Criteria.' See the third section of this article, and note 191.

<sup>140</sup> Stickler et al., *supra* note 57 at 2811.

<sup>141</sup> See the section third of this article.

<sup>142</sup> Long, for example, suggests that REDD should integrate private and public initiatives, building upon expertise accrued through certification. See Long, *supra* note 20 at 66-68.

<sup>143</sup> D. Nepstad, *Recognizing and Managing the Tropical Agricultural Revolution in Latin America and the Caribbean*, at 7 (2011).

<sup>144</sup> For a comprehensive review of options, see Zarin et al., *supra* note 17.

reductions, the fund-based approach could also be used to support REDD readiness endeavours and capacity-building needs in developing countries.<sup>145</sup>

A ‘phased approach’ to financing REDD is however likely to prevail, with a gradual transition from public funding for capacity building and demonstration activities, to market funding based on the trade in forest carbon certificates.<sup>146</sup> This approach has the advantage of combining funding for REDD readiness arrangements while eventually broadening the funding base through the carbon market.<sup>147</sup> The Cancun Agreements have endorsed a ‘phased approach’ to REDD but have remained silent on financing, which remains one of the most contentious issues for negotiation.<sup>148</sup>

Reducing biodiversity loss and carbon emissions requires significant efforts from forest-rich developing countries, many of which cannot afford the investments required. In this regard, the principle of common but differentiated responsibilities, endorsed both by the CBD<sup>149</sup> and the UNFCCC,<sup>150</sup> calls upon developed countries to supply the means for undertaking biodiversity conservation and climate change mitigation endeavours in developing country parties. Nonetheless, inadequate allocation of financial resources under both instruments has so far greatly hindered the achievement of these objectives.

REDD is particularly well positioned to streamline action under the two conventions. The main implications of REDD financing for biodiversity relate to its

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<sup>145</sup> *Ibid.* at 7.

<sup>146</sup> *Ibid.* at 3.

<sup>147</sup> *Ibid.*

<sup>148</sup> Decision 1/CP.16, *supra* note 13 at 73.

<sup>149</sup> See CBD, *supra* note 6, Article 20.4: ‘The extent to which developing country Parties will effectively implement their commitments under this Convention will depend on the effective implementation by developed country Parties of their commitments under this Convention related to financial resources and transfer of technology and will take fully into account the fact that economic and social development and eradication of poverty are the first and overriding priorities of the developing country Parties.’

<sup>150</sup> See UNFCCC, *supra* note 6, Article 4.7: ‘The extent to which developing country Parties will effectively implement their commitments under the Convention will depend on the effective implementation by developed country Parties of their commitments under the Convention related to financial resources and transfer of technology and will take fully into account that economic and social development and poverty eradication are the first and overriding priorities of the developing country Parties.’

potential for providing payments for ecosystem services for which no funding of similar scale exists.<sup>151</sup> REDD may in fact generate a flow of revenue that is far greater than existing international conservation funding. Forests conserved in this way could dwarf the area of forested land currently under protected status.<sup>152</sup> REDD could thus have the effect of conserving and restoring forests, while benefiting those who depend on them.<sup>153</sup> In this connection, REDD provides a unique opportunity to streamline international law commitments on climate change mitigation, biodiversity conservation and sustainable development in the forest sector.

As mentioned earlier, the relationship between REDD and protected areas remains undetermined.<sup>154</sup> Investments in protected areas and improvements to their management are already included in some pilot programs for REDD.<sup>155</sup> In instances such as these, it is critical to avoid the creation of perverse incentives for countries to discard protected areas, or withdraw funding from them, in anticipation of REDD payments.<sup>156</sup>

The provision of biodiversity co-benefits is likely to entail additional costs, such as those associated with the monitoring of the implementation of safeguards.<sup>157</sup> Purchasers of REDD carbon credits may be willing to pay a premium to save imperilled ecosystems or species and REDD co-benefits could become the object of special premiums.<sup>158</sup> Standards that reflect biodiversity co-benefits may therefore be used to differentiate forest carbon in the marketplace, in association with premiums for forest carbon credits that also generate biodiversity co-benefits.<sup>159</sup> However, voluntary schemes are unlikely to supply the scale of funding necessary to create biodiversity premiums globally. Just as demand for CDM credits is driven by legally binding emission reduction commitments under the Kyoto Protocol, demand for

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<sup>151</sup> Harvey, Dickson, and Kormos, *supra* note 12 at 1.

<sup>152</sup> *Ibid.* at 2.

<sup>153</sup> Stickler et al., *supra* note 57 at 2804.

<sup>154</sup> K. Karousakis, Promoting Biodiversity Co-Benefits in REDD, at 17 and 20 (Environment Working Papers, 2009). See also the second section of this article.

<sup>155</sup> Miles, Dunning, and Doswald, *supra* note 12 at 25.

<sup>156</sup> *Ibid.*

<sup>157</sup> *Ibid.* at 39.

<sup>158</sup> TEEB, *supra* note 55 at 15.

<sup>159</sup> *Ibid.*



biodiversity premiums may need to be stimulated by specific requirements included in the detailed rules that will eventually be adopted to operationalize REDD.<sup>160</sup>

#### 4. REDD and Biodiversity: Caveats and Opportunities

This section has summarized the questions concerning REDD's impact on biodiversity, highlighting the potential not only for synergies but also for perverse outcomes. The inclusion of biodiversity concerns in REDD is likely to require additional monitoring and verification as well as funding. The extent to which the UNFCCC parties may be willing to pursue synergies between biodiversity conservation and climate change mitigation is still unclear. In the meanwhile, work carried out under the auspices of the CBD Secretariat has raised awareness of the need to address overlapping obligations under the two conventions. In this context, the debate on 'biodiversity safeguards' provides an insight on how REDD may enhance concerted action to simultaneously achieve the objectives of the UNFCCC and the CBD in developing countries, as the next section explains.

### III. THE DEBATE ON BIODIVERSITY SAFEGUARDS FOR REDD

The CBD and the UNFCCC view forests from different perspectives. While the CBD is concerned with forests as habitats and as components of biodiversity, under the UNFCCC they are chiefly carbon sinks and sources. Despite these different approaches, both conventions address forest management to a certain degree and, when implementing REDD activities, parties to both conventions are likely to be faced with overlapping obligations.<sup>161</sup> As mentioned earlier, this issue has already arisen in connection with afforestation and reforestation projects under the CDM, and some scholars have pointed to potential synergies and frictions.<sup>162</sup>

The CBD and the UNFCCC are equally binding upon parties and the principle *pacta sunt servanda* requires parties to fulfil their commitments under both treaties in

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<sup>160</sup> See Karousakis, *supra* note 154 at 20.

<sup>161</sup> In this connection, it is important to recall that both treaties have virtually universal membership. See note 6 in this article.

<sup>162</sup> See note 79 in this article and corresponding text.

good faith.<sup>163</sup> Arguably, the CBD and the UNFCCC may be regarded as ‘common interest treaties,’ as they were negotiated in parallel and adopted at the UN Conference on Environment and Development in 1992.<sup>164</sup> Both conventions deal with global environmental problems and establish regimes of almost universal application, which prohibit parties from making specific reservations to their provisions.<sup>165</sup> The objectives of the conventions are not mutually exclusive, and they provide several areas for mutually supportive action. In this respect, overlapping obligations should be viewed as an integrated whole, and parties to both the CBD and the UNFCCC should adopt a harmonizing approach to the respective obligations.<sup>166</sup>

The same seems to apply to decisions by treaty bodies. It exceeds the scope of the present article to enquire on the legal nature of these processes. Treaty-based institutions, such as COPs, may be regarded as mere diplomatic conferences or ‘coalitions of the willing.’<sup>167</sup> As such, it is open to debate whether their decisions have enough legal strength to amount to international obligations.<sup>168</sup> Nevertheless, it is beyond dispute that COP decisions ‘can influence the substantive obligations of the parties in numerous ways, affect the internal workings of the treaty regime and its institutions, and serve efforts to enhance the effectiveness of the treaty.’<sup>169</sup> The

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<sup>163</sup> Convention on the Law of the Treaties, 1969, 8 I.L.M. 679, Article 26.

<sup>164</sup> See Pontecorvo, *supra* note 19 at 742; Jacquemont and Caparrós, *supra* note 19 at 178. The existence of common interests is, *inter alia*, confirmed by the establishment of a Joint Liaison Group between the Rio conventions, as an informal forum for exchanging information, exploring opportunities for synergistic activities, and increasing co-ordination. See the discussion in the third section of this article and in note 221.

<sup>165</sup> CBD, *supra* note 6, Article 34; UNFCCC, *supra* note 6, Article 24.

<sup>166</sup> Compare International Law Commission, Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law, Report of the Study Group of the International Law Commission, at 414 (2006).

<sup>167</sup> P. Birnie, A. Boyle, and C. Redgwell, *International Law and the Environment*, at 11 (2009).

<sup>168</sup> For an analysis, see R.R. Churchill and G. Ulfstein, *Autonomous Institutional Arrangements in Multilateral Environmental Agreements: A Little-Noticed Phenomenon in International Law* 94 A.J.I.L. 623 (2000); J. Brunnée, *COPing with Consent: Lawmaking under Multilateral Environmental Agreements* 15 Leiden J. Int'l L. 1 (2002); A. Wiersema, *The New International Law-Makers? Conferences of the Parties to Multilateral Environmental Agreements* 31 Michigan J. Int'l L. 231 (2009).

<sup>169</sup> See Wiersema, *supra* note 168 at 245. Compare Birnie, Boyle, and Redgwell, *supra* note 167 at 19.

complex legal framework established under the UNFCCC, for one, has been crucially defined by COP decisions.<sup>170</sup> Also here, overlaps with other international processes may be better addressed through a harmonizing approach. In this connection, parties to both the UNFCCC and the CBD are faced with some ‘potential for synergy.’<sup>171</sup> As the next section shows, the treaty bodies have already taken some action to address this potential.

## 1. Biodiversity Safeguards under the UNFCCC

The term ‘safeguards’ first appeared in negotiations in 2009 to indicate, *inter alia*, measures to protect biological diversity, ‘including safeguards against conversion of natural forests to forest plantations.’<sup>172</sup> Ever since, the debate on safeguards has centred on their scope and means of implementation. Some authors have argued that countries benefiting from REDD should be prohibited from clearing native vegetation or terrestrial ecosystems of high biodiversity-value for the establishment of plantation forests.<sup>173</sup> Along similar lines, it has been suggested that sustainable forest management activities must not affect primary forests of high biodiversity value.<sup>174</sup> In this respect, parties may be required to report forest biodiversity data, together with data concerning carbon stocks.<sup>175</sup> Countries intending to participate in REDD may

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<sup>170</sup> COP decisions have been deployed to take fundamental steps for defining crucial details of obligations under the convention and the Kyoto Protocol, such as, for example, the so-called Marrakesh Accords. UNFCCC, *Addendum: Action Taken by the Conference of the Parties at Its Seventh Session*, UN Doc. FCCC/CP/13/Add.1 (2001), FCCC/CP/13/Add.2 (2001), and FCCC/CP/13/Add.3 (2001).

<sup>171</sup> van Asselt, *supra* note 20 at 4.

<sup>172</sup> Ad Hoc Working Group on Long-Term Cooperative Action under the Convention *Non-Paper 11 on Policy Approaches and Positive Incentives on Issues Relating to Reducing Emissions from Deforestation and Forest Degradation in Developing Countries; and the Role of Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks in Developing Countries*, Revised annex III C to UN Doc. FCCC/AWGLCA/INF.2 (2009) at 4(f).

<sup>173</sup> Stickler et al., *supra* note 57 at 2806.

<sup>174</sup> Pistorius et al., *supra* note 12 at 7.

<sup>175</sup> Harvey, Dickson, and Kormos, *supra* note 12 at 55.

also be required to demonstrate that measures to protect areas of high biodiversity have been undertaken.<sup>176</sup>

The Cancun Agreements partially address these concerns by mentioning that REDD activities ‘are consistent with the conservation of natural forests and biological diversity’ and ‘are not used for the conversion of natural forests, but are instead used to incentivize the protection and conservation of natural forests and their ecosystem services, and to enhance other social and environmental benefits.’<sup>177</sup> The implications of this and other safeguards, however, presently depend on parties’ interpretation and enforcement of the inherent requirements. In this regard, the wording chosen to introduce the safeguards merely asserts, ‘the following safeguards should be promoted and supported.’<sup>178</sup> This terminology clearly suggests that the safeguards are voluntary and not currently intended to be part of mandatory conditions for implementing REDD.

Furthermore, the Cancun Agreements merely requests parties to develop ‘a system for providing information’ on how the safeguards are being addressed and respected throughout the implementation of the activities, ‘while respecting sovereignty.’<sup>179</sup> The text arguably represents a relapse compared with earlier versions that requested parties to develop ‘a robust and transparent national forest monitoring system for the monitoring and reporting of the activities ... and the safeguards.’<sup>180</sup> The fact that the latter expression now appears only in connection with ‘activities,’ together with the newly inserted reference to ‘sovereignty,’ seems to leave room to speculate that parties deliberately intended to attenuate this requirement with specific reference to safeguards. This weakened terminology is mirrored in the mandate to the SBSTA.<sup>181</sup> The Cancun Agreements have mandated the SBSTA to develop ‘modalities’ for national forest emission levels and national forest monitoring

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<sup>176</sup> Stickler et al., *supra* note 57 at 2806.

<sup>177</sup> Decision 1/CP.16, *supra* note 13, Appendix I at 2(e).

<sup>178</sup> *Ibid.*, Appendix I at 2.

<sup>179</sup> *Ibid.*, at 71(d).

<sup>180</sup> Draft Decision -/CP.15 on Policy Approaches and Positive Incentives on Issues Relating to Reducing Emissions from Deforestation and Forest Degradation in Developing Countries; and the Role of Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks in Developing Countries, UN Doc. FCCC/AWGLCA/L.7/Add.6 (2009) at 5(c).

<sup>181</sup> Decision 1/CP.16, *supra* note 13, Appendix II.

systems, but only to develop ‘guidance’ for safeguards.<sup>182</sup> Safeguards had been included under modalities in earlier editions of the text.<sup>183</sup>

If the experience of the CDM offers an apt model for comparison, it may be years before the parties are in a position to adopt a fully fledged set of rules on REDD. Although domestic conditions and national and sub-national action are crucial, the need for internationally coordinated standards for biodiversity safeguards could not be greater. Concerted international action is necessary to establish a level playing field, ensuring the pursuit of co-benefits as well as compliance with extant international obligations. In this context, the processes that are presently most likely to guide and influence individual country action are those dealing with REDD readiness, most notably the FCPF and the UN-REDD Programme.

Both the FCPF and the UN-REDD Programme require countries to consider ecosystem and social benefits in establishing their REDD national programs, although they do not make any mandatory requirements in this connection.<sup>184</sup> The related standards are still in the process of being drafted. The FCPF Charter asserts that the operation of the facility must comply with the World Bank’s Operational Policies and Procedures, which are designed to avoid, mitigate, or minimize adverse environmental and social impacts of projects supported by the bank.<sup>185</sup> Since the policies and procedures were mainly developed with project-based lending in mind,<sup>186</sup> the FCPF has adapted them to the REDD readiness planning process, chiefly through the use of ‘Strategic Environmental and Social Assessments.’<sup>187</sup> The assessments are

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<sup>182</sup> *Ibid.*, Appendix II at (b).

<sup>183</sup> Draft Decision -/CP.15, *supra* note 180 at 9.

<sup>184</sup> See Miles, Dunning, and Doswald, *supra* note 12 at 7.

<sup>185</sup> World Bank, Charter Establishing the Forest Carbon Partnership Facility, International Bank for Reconstruction and Development (2010), Article 3(d). See also <<http://www.worldbank.org/safeguards>>.

<sup>186</sup> N. Moss and R. Nussbaum, A Review of Three REDD+ Safeguard Initiatives, at 7 (2011).

<sup>187</sup> The FCPF has produced guidelines to assist countries in incorporating environmental and social considerations in readiness activities financed by the Readiness Fund. See FCPF, Incorporating Environmental and Social Considerations into the Process of Getting Ready for REDD plus, revised draft (7 March 2010). The guidelines specify that during the readiness process, the scope of application of World Bank safeguard policies will depend on the nature of the activities for which a REDD country participant seeks support. Given that the precise nature of the readiness activities will not be known until

meant to identify and determine specific environmental and social impacts as well as the legal and policy implications of REDD activities,<sup>188</sup> including consideration of relevant ‘international treaties and other instruments which the country must comply with or take into consideration.’<sup>189</sup> The deviation from the World Bank’s Operational Policies and Procedures, and the perceived lack of stringent requirements have, however, attracted some criticism.<sup>190</sup>

The other main international process engaged in REDD readiness, the UN-REDD Programme, is in the course of developing specific ‘Social and Environmental Principles and Criteria,’<sup>191</sup> which are expected to build upon the safeguards included in the UNFCCC texts and reflect UN policies set out in relevant conventions and treaties.<sup>192</sup> In March 2011, the UN-REDD Programme published a draft set of principles and criteria, which encompass democratic governance; impacts on stakeholder livelihoods; policy coherence; the protection and conservation of natural forests; the maintenance and enhancement of a forest’s multiple functions; and the minimization of indirect adverse impacts on ecosystem services and biodiversity.<sup>193</sup> An interim report on the development of the principles is expected to be submitted to the UN-REDD Programme Policy Board in October 2011, and the framework will be finalized after COP-17. The final result will be the establishment of UN-REDD operational guidance for all future national programs.

Although the FCPF and the UN-REDD Programme have no formal links to the UNFCCC system, bilateral co-operation and experience that has so far accrued

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they are more fully elaborated, the safeguards determination may need to be refined at a later stage. *Ibid.* at 2.

<sup>188</sup> *Ibid.*, Appendix 2.

<sup>189</sup> *Ibid.*, Appendix 2 at 3(b).

<sup>190</sup> K. Dooley et al, *Smoke and Mirrors: A Critical Assessment of the Forest Carbon Partnership Facility* (2011). Compare also the ample coverage provided by the REDD Monitor, <<http://www.redd-monitor.org/tag/forest-carbon-partnership-facility/>> and by the Forest Peoples Programme, <<http://www.forestpeoples.org/topics/climate-forests>>.

<sup>191</sup> UN-REDD, *Social and Environmental Principles and Criteria*, version 1 (2011).

<sup>192</sup> UN-REDD, *The UN-REDD Programme Strategy 2011-2015*, at 15 (2011). The strategy further asserts that risk assessment tools are expected to draw upon criteria from existing voluntary and minimum standard initiatives, such as the CCBA/Climate Care REDD Social and Environmental Standards. CCBA and Climate CARE, *supra* note 139. For a discussion, see Long, *supra* note 20 at 66.

<sup>193</sup> UN-REDD, *supra* note 191.

through these processes provides particularly important evidence to assess the feasibility of forest governance reforms through REDD as well as the potential to use conditionality to achieve climate change mitigation in developing countries. There are overlaps between countries adhering to the FCPF and the UN-REDD Programme, and concerns regarding the duplication of efforts have been raised.<sup>194</sup> The two-track approach has also been the object of criticism for facilitating finance flows to richer and better-equipped forest countries, while entrenching and expanding the division that already exists between those with and without the ability to implement REDD.<sup>195</sup>

Nevertheless, before a comprehensive set of rules on REDD under the UNFCCC is adopted, the FCPF and the UN-REDD Programme remain the main source of guidance for countries seeking to get ready for REDD. So far, these processes have failed to undertake convincing action to shape ‘biodiversity safeguards’ for REDD. It is therefore critical to draw upon guidance provided by other international processes dealing with forests. One of the most important terms of reference in this connection is guidance elaborated in the framework of the CBD.<sup>196</sup>

## 2. Biodiversity Safeguards under the CBD

Already in 2008, the CBD COP issued a decision calling on parties, non-party governments, and international organizations to ensure that REDD support the aims and implementation of the CBD, provide benefits for forest biodiversity, and involve biodiversity experts in REDD program design.<sup>197</sup> In 2010, the CBD COP took further steps in this direction by adopting Decision X.33, which provides ‘guidance on ways to conserve, sustainably use and restore biodiversity and ecosystem services while contributing to climate change mitigation and adaptation.’<sup>198</sup> The decision includes a wide range of recommendations on REDD and its impact on biodiversity.<sup>199</sup>

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<sup>194</sup> For an overview, see NORAD, *supra* note 67 at 56.

<sup>195</sup> IDEACarbon, *Assessing the Financial Flows for REDD+: the Pledge-Implementation Gap* (2011) at 4.

<sup>196</sup> Pistorius et al., *supra* note 12.

<sup>197</sup> Decision IX/5, *supra* note 114 at 2a.

<sup>198</sup> Decision X/33 on Biodiversity and Climate Change, UN Doc. UNEP/CBD/COP/10/27 (2010) at 8.

<sup>199</sup> For a comprehensive review of the decisions adopted at CBD COP-10, see E. Morgera, *Faraway, So Close: A Legal Analysis of the Increasing Interactions*



The decision encourages parties to promote the importance of biodiversity considerations in ongoing discussions on REDD,<sup>200</sup> inviting them to implement ecosystem-based approaches for climate change adaptation and mitigation<sup>201</sup> and to reduce the biodiversity impacts of climate change adaptation and mitigation measures.<sup>202</sup> In connection with mitigation, parties are called upon to implement ecosystem-management activities, including the protection of natural forests, natural grasslands, and peatlands, and the sustainable management of forests, with consideration of the use of native communities of forest species in reforestation activities.<sup>203</sup>

These issues are addressed in other passages of the decision, where parties are invited to implement improved land management, reforestation, and forest restoration in forest landscapes, subject to harvesting, clearing, and/or degradation, prioritizing the use of ‘native communities of species,’ and limiting the degradation and clearing of primary and secondary (that is, modified natural) forests.<sup>204</sup> Furthermore, when designing, implementing, and monitoring afforestation, reforestation, and forest restoration activities, parties are invited to consider the conservation of biodiversity and ecosystem services by, for example, converting only land of low biodiversity value or ecosystems largely composed of non-native species—preferably degraded ones; prioritizing, whenever feasible, local and acclimated native tree species when selecting species for planting; avoiding invasive alien species; preventing the net reduction of carbon stocks in all organic carbon pools; strategically locating afforestation activities within the landscape to enhance connectivity; and increasing the provision of ecosystem services within forest areas.<sup>205</sup>

Most crucially, Decision X/33 invites parties to use strategic environmental assessments and environmental impact assessments to increase the positive impacts and to reduce the negative impacts of climate-change mitigation and adaptation

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*between the Convention on Biological Diversity and Climate Change Law 2*  
Climate Law 85 (2011).

<sup>200</sup> Decision X/33, *supra* note 198 at 3.

<sup>201</sup> *Ibid.* at 8(j-l) and (m-t).

<sup>202</sup> *Ibid.* at 8(u-x).

<sup>203</sup> *Ibid.* at (n).

<sup>204</sup> *Ibid.* at (o).

<sup>205</sup> *Ibid.* at (p).

measures on biodiversity.<sup>206</sup> As is discussed earlier in this article, the deployment of similar tools is already required by extant initiatives to facilitate REDD readiness, which, for the time being, are the most important means in ascertaining baseline conditions for REDD.<sup>207</sup>

Decision X/33's detailed guidance is further strengthened through the provision of arrangements to enhance collaboration with the UNFCCC and other international bodies.<sup>208</sup> In particular, the decision requests the CBD's executive secretary to convene an expert workshop on REDD with a view to enhancing the coordination of capacity-building efforts related to biodiversity, ecosystem-based carbon sequestration, and the conservation of forest carbon stocks.<sup>209</sup> The COP further requires the executive secretary to provide advice to other international bureaucracies dealing with REDD on a number of issues, including the application of relevant biodiversity safeguards, to ensure consistency with the objectives of the CBD, and to avoid negative impacts on, and enhance benefits for, biodiversity.<sup>210</sup>

The executive secretary was asked to identify possible indicators to assess REDD's contribution to achieving the objectives of the CBD and mechanisms to monitor the impact on biodiversity from these and other ecosystem-based approaches for climate change mitigation.<sup>211</sup> Both requests came with the specification that such activities should not pre-empt 'any future decisions taken under the [UNFCCC].'<sup>212</sup> This concern was reiterated with a mention of the respective independent legal status and mandates of the Rio conventions and the different composition of parties.<sup>213</sup> Finally, the decision required the executive secretary to convey a proposal to develop joint activities between the three Rio conventions, including biodiversity considerations related to REDD.<sup>214</sup>

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<sup>206</sup> *Ibid.* at (u).

<sup>207</sup> See the discussion in the third section of this article.

<sup>208</sup> Decision X/33, *supra* note 198 at 9-10.

<sup>209</sup> *Ibid.* at 9(f).

<sup>210</sup> *Ibid.* at 9(g).

<sup>211</sup> *Ibid.* at 9(h).

<sup>212</sup> *Ibid.* at 9(g-h).

<sup>213</sup> *Ibid.* at 13.

<sup>214</sup> *Ibid.* at 13 and 10, respectively. The decision further invited the Rio conventions COPs to include the development of such joint activities in the agenda of the next meeting of the Joint Liaison Group. See *ibid.* at 13(b). See also note 221 in this article.

The executive secretary has already undertaken some action to comply with these requests and invited parties to send their views, experiences, and expectations with regard to REDD safeguards, to identify possible indicators to assess the contribution of REDD to achieving the objectives of the CBD; and to submit their views on mechanisms to monitor the impacts from REDD and other ecosystem-based approaches for climate change mitigation measures on biodiversity.<sup>215</sup>

Decision X/33 may be viewed as an attempt to ‘influence the design of REDD’ and to address overlaps between biodiversity protection and climate change mitigation in the forest sector.<sup>216</sup> The CBD COP has evidently followed the debate on biodiversity safeguards for REDD and addressed them in much greater detail than its equivalent under the UNFCCC. Arguably, the CBD COP has also taken a more ‘holistic’ and proactive stance on the matter,<sup>217</sup> which is fitted with the all-encompassing objective of the CBD and its previous efforts to promote enhanced concerted action under the Rio conventions.<sup>218</sup> It remains to be seen how parties to the UNFCCC will respond to these initiatives. The next session should provide some illumination on this point.

### 3. Biodiversity Safeguards for REDD: An Early Assessment

Several questions may be raised regarding integration of the guidance supplied by the CBD COP within the UNFCCC process. While the CBD has been rather vocal in requesting enhanced concerted action under the conventions, these calls have so far remained largely unanswered by the UNFCCC COP, save for a few erratic exceptions.<sup>219</sup> Since the texts of the conventions lack specific provisions on cooperation, the biodiversity safeguards included in the decisions of the treaty-making bodies should be interpreted and implemented in good faith by the parties to those

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<sup>215</sup> CBD Secretariat, Submission of Views on Relevant Safeguards in Reducing Emissions from Deforestation and Forest Degradation and the Role of Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks in Developing Countries (REDD+), Doc. SCBD/STTM/JM/TC/JSI/74726 (2011).

<sup>216</sup> van Asselt, *supra* note 20 at 39.

<sup>217</sup> Morgera, *supra* note 199 at 95.

<sup>218</sup> For an analysis, see *ibid.* at 91-92.

<sup>219</sup> See Decision 13/CP.8 on Cooperation with Other Conventions, UN Doc. FCCC/CP/7/Add.1 (2002), preamble.

instruments. One major obstacle affecting the integration within REDD of guidance supplied by the CBD COP may be that the parties have tended to interpret the conventions' mandate restrictively.<sup>220</sup> The Joint Liaison Group<sup>221</sup> established to enhance coordination between the Rio conventions and to explore options for further cooperation has delivered few results to date,<sup>222</sup> perhaps confirming the parties' limited political will to strengthen concerted action.<sup>223</sup>

The very fact that the CBD COP guidance has not percolated through the text of the Cancun Agreements may be read as a signal of this continued restraint. Such apparent restraint, however, may also simply reflect the fact that the CBD COP took place only a few weeks before the UNFCCC COP, thus leaving little time for the one process to feed into the other. The text of the Cancun Agreements provides scope for limited optimism, as it asserts 'the need to strengthen international cooperation and expertise to understand and reduce loss and damage associated with the adverse effects of climate change, including impacts related to extreme weather events and

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<sup>220</sup> See van Asselt, *supra* note 20 at 41, where the author quotes as an example the fact that Australia has expressed the view that the CBD and the Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, 33 I.L.M. 1273 (1994), do not have a legitimate role in climate change mitigation. Compare SBSTA, *Views on the Paper on Options for Enhanced Cooperation among the Three Rio Conventions, Submissions from Parties*, UN Doc. FCCC/SBSTA/MISC.4 16 (2006), submission by Australia, at 5.

<sup>221</sup> The Joint Liaison Group was established to enhance co-ordination between the three conventions, including the exchange of relevant information, and to explore options for further co-operation between the conventions, including the possibility of a joint work plan and/or a workshop. See SBSTA, *Report of the Subsidiary Body on Scientific and Technological Advice on the Second Part of Its Fourteenth Session, Bonn, 24-27 July 2001*, UN Doc. FCCC/SBSTA/2 (2001) at 42(d). The establishment of the group was later endorsed by Decision 13/CP.8, *supra* note 219. Since then, co-operation with the CBD has been discussed under the agenda item of 'cooperation with relevant international organizations.'

<sup>222</sup> In this regard, Decision 13/CP.8, *supra* note 219, generally affirms the need for enhanced cooperation 'with the aim of ensuring the environmental integrity of the [Rio conventions] and promoting synergies under the common objective of sustainable development, in order to avoid duplication of efforts, strengthen joint efforts and use available resources more efficiently.'

<sup>223</sup> For an overview on co-operative action, see SBSTA, *Summary of Cooperative Activities with United Nations Entities and Intergovernmental Organizations to Contribute to the Work under the Convention*, UN Doc. FCCC/SBSTA/INF.3 (2011).

slow onset events.<sup>224</sup> A footnote to the text includes biodiversity loss among the mentioned effects. Furthermore, Appendix I specifically mentions that REDD activities should ‘complement’ or be ‘consistent with the objectives of national forest programmes and relevant international conventions and agreements.’<sup>225</sup>

It remains to be seen what the UNFCCC COP will decide in future negotiations. In this connection, the SBSTA has been given the mandate of putting flesh on the safeguards outlined in the Cancun Agreements. The work of the SBSTA may be a propitious opportunity to bridge the gap and streamline parties’ commitments in this area. However, the operationalization of safeguards (and of REDD) entirely depends on the progress in the negotiations on renewed commitments under the UNFCCC. At the time of writing, the process continues to be slow, and agreement at the next COP seems increasingly unlikely.<sup>226</sup> *Rebus sic stantibus*, it remains up to individual countries to interpret their obligations under the CBD and the UNFCCC, as well as guidance by their treaty bodies, in an integrated fashion. In this context, the processes that are presently most likely to guide and influence individual country action are the FCPF and the UN-REDD Programme. Although the FCPF and the UN-REDD Programme have no formal links to the UNFCCC system, they remain for the time being the main reference for countries seeking to address the biodiversity concerns raised by REDD. Lessons learned through these processes are likely to shape the debate on safeguards and the work of the SBSTA on the issue, together with guidance provided in Decision X.33.

## V. CONCLUSIONS

The last decade has witnessed unprecedented reforms in domestic forest laws and policies.<sup>227</sup> It does not seem misguided to argue that REDD has played a significant part in driving this change. The extent to which REDD will deliver biodiversity co-benefits depends on how and where activities are implemented. If REDD succeeds in

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<sup>224</sup> Decision 1/CP.16, *supra* note 13 at 25.

<sup>225</sup> *Ibid.*, Appendix I at 2(a).

<sup>226</sup> *Durban Climate Deal Impossible, Say US and EU Envoys*, The Guardian, 28 April 2011, <<http://www.guardian.co.uk/environment/2011/apr/28/durban-climate-deal-impossible>>. Compare also C. Spence, *What Can a Deal in Durban Deliver? Climate Change Policy and Practice* (2011).

<sup>227</sup> FAO, *supra* note 1 at 9.

avoiding negative impacts on biodiversity, it may simultaneously advance forest conservation and climate change mitigation in developing countries.

As a proposed mechanism under the UNFCCC, REDD is chiefly about climate change mitigation and will not be a panacea for biodiversity loss. Still, overlaps between carbon sequestration and biodiversity protection in the forest sector should be addressed in a way that is consistent with states' extant international commitments. Parties to the CBD are surely expected to take into consideration the guidance provided by Decision X/33. And since parties to the CBD and the UNFCCC are virtually the same, it seems desirable to design REDD in a way that streamlines the guidance provided by CBD decisions and that reinforces the global commitment to biodiversity conservation.

So far, negotiations on REDD seem to have taken opportunities for synergies into account only marginally. The very extent that biodiversity safeguards should be included in REDD is still the subject of debate. Some argue it is unwise to further complicate an already troubled negotiation process with requirements for biodiversity co-benefits, which may impede swift action to ensure climate change mitigation.<sup>228</sup> Perhaps, but the rewards of getting it right stretch beyond climate change mitigation and include the conservation of some of the world's richest terrestrial ecosystems. In this regard, REDD may present an unparalleled win-win opportunity to combine climate change mitigation with biodiversity conservation.

As described throughout this article, successful implementation of REDD faces substantial challenges. Forests in developing countries lie at the interface of economic, environmental, and social policies. The questions that are being discussed in connection with the establishment of the REDD mechanism are not new and have hampered official development assistance and forest conservation efforts for decades. Any instrument designed to reform the *status quo* is going to face considerable and potentially even insurmountable challenges. As forest loss is driven by forces that may not be kept under control at the domestic level, an international framework to address the problem is quite necessary. REDD potentially lends itself to this purpose and could become the framework for elaborating a set of rules about acceptable forest uses, which also streamline commitments undertaken with the CBD. In this context, the additional momentum associated with the coincidence of climate change

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<sup>228</sup> Busch et al., *supra* note 12 at 12.

mitigation and biodiversity conservation objectives may provide the leverage to finally overcome obstacles that have hindered international collaboration in the forest sector so far.